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A FRAMEWORK FOR ANALYSING THE DETERMINANTS OF HEALTH AND SAFETY SELF-REGULATION IN THE CONSTRUCTION INDUSTRY

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While regulating health and safety (H&S) is one of the preconditions for improving and sustaining H&S, there is substantial evidence that the Nigerian construction industry continues to suffer neglect in that regard. Nonetheless, some construction contractors self-regulate in the absence of external influences including regulation. The decision to self-regulate is determined by a number of key factors. It is, therefore, important to understand their decisions to self-regulate for effective policy making with the aim that more construction contractors will start adopting self-regulatory programs for H&S. Based on current evidence and theories from existing literature, this paper presents a proposed framework for analysing the determinants of H&S self-regulation in the Nigerian construction industry. Some elements of the framework are centred on: regulatory issues, the ability to self-regulate, normative factors, industry issues, social pressure and economic climate. It is established in this study that while there is significant hypothetical relationships among the elements of the framework, the evidence in practice may annul the hypothetical relationships.

Keywords: construction industry, factors, health and safety, Nigeria, self-regulation.

INTRODUCTION

While the significant contribution of the Nigerian construction industry to the Nigerian economy is acknowledged in various studies (Diugwu et al. 2013; Umeokafor et al 2014; Windapo & Jegede 2013), the deplorable state of the industry in terms of health and safety (H&S) is however also noted (Ajayi & Thwala 2014; Diugwu et al. 2012; Dodo 2014; Idoro 2007, 2011; Windapo & Jegede 2013). In particular, Idoro (2007) found the injury per accident rate of multinational contractors to be relatively high at 0.13 – 4.0, with a recorded mean of 0.94. Idoro (2007) also reports an injury per accident rate of 0.19 – 3.0 and a mean of 0.77 for the indigenous contractors. Additionally, Ajayi and Thwala (2014) in a study of 48 construction contractors in South-West Nigeria found the mean scores of 3.67 for management concern for safety procedures and 4.04 for feedback from site employees. These values fall within the ranges of >3.40 and ≤ 4.20 thus showing a near major/major extent of impact (Ajayi & Thwala 2014). There is dearth of H&S statistics in Nigeria (Idoro 2008), so it can be argued that this is a ‘tip of the iceberg’.

There are many ways to improve the state of H&S in the construction industry. For instance, adopting advanced technology (Marks & Teizer 2013), designing to prevent hazards (Lingard et al. 2012), regulation of H&S (Umeokafor et al. 2014) to name but few. Nonetheless, the regulation of H&S is the main approach that is adopted in Nigeria (Diugwu et al. 2013). But, the current evidence indicates that the regulation of H&S in Nigeria is poor resulting in unsatisfactory standards of H&S (for example: Idoro 2008, Diugwu et al. 2012, Umeokafor et al. 2014). Diugwu et al. (2012) emphasise

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that the poor state of H&S in Nigeria is due to the dysfunctional regulatory state of H&S. The Nigerian construction industry is arguably unregulated because it is not covered by the existing Factories Act LFN 2004 (Diugwu et al. 2012; Idoro 2008), yet some construction firms especially multinationals adopt international legislation (Idoro 2011) such as Construction (Design and Management) Regulations (CDM) 2007 or 2015.

Koehn et al. (1995) note that safety should be a major concern for employers, but in Nigeria, it is believed that only a particular sector of the construction industry has employees' safety as a major concern. Typically, Windapo and Jegede (2013) note that multinational construction firms have very good systems in place for managing H&S thus have better H&S records. Some of these firms develop policies and safety programs so as to protect their reputation in these developing countries (Koehn et al. 1995) and to reap the benefits of improved H&S such as higher productivity. However, the implementation of the standards and/or legislation is at the discretion of the adopters (Idoro 2008). The premise established so far explains why scholars call for attention on H&S enforcement and H&S audit both in research and in practice (Dodo 2014).

Regulation is the process of developing or adopting and administering policies and/or standards. This includes: enforcement of policies, inspection, monitoring of the regulatory process *inter alia*. Havinga (2006) notes that regulation can be at state/public and/or private level. When at a private level it is called self-regulation. Self-regulation of H&S is the process by which organisations develop or adopt and administer policies and/or standards without external intervention or with little external intervention as a mechanism to reduce risks in the workplace. If this is the case, then many construction contractors in Nigeria probably self-regulate.

The regulatory environment of the Nigerian construction industry is unique in that H&S regulation falls into four categories of self-regulation (see the section below). Hence, compliance with legislation theories are also considered in this study.

Studies demonstrate various ways to understand self-regulation such as the social legitimacy of the law and social pressure (Giuliano & Linder 2013). This is in addition to economic or business cases made in Giuliano and Linder (2013). Winter and May (2001) also note the same for compliance with legislation adding others such as the ability to comply with the law. *Ibid* go on to explain compliance with theories such as normative motivation, calculated motivation, and social motivation. Little or no literature can be found on H&S self-regulation in developing countries.

Against the background established so far, it is vital to understand the determinants of H&S self-regulation so as to design strategies that will encourage other firms to start self-regulating. This paper presents a framework for analysing the determinants of H&S self-regulation. The framework is based on theories and evidence from literature. It is part of a research project that is aimed at understanding the determinants of self-regulation with regard to H&S in the Nigerian construction industry. In this paper, there is a review of literature that relates to the legal context of H&S in the Nigerian construction industry. This is followed by a brief discussion of the types of H&S self-regulation that arguably exist in the Nigerian construction industry. The research method is then presented followed by the framework and critical discussion.

Granted that this study is contextualised to Nigeria, other developing countries will likely find it applicable. As Kheni et al. (2010) demonstrate (by citing Ofori 1999; Hillebrandt 1999; Thomas 2002), developing countries have similar characteristics with regard to cultural environment, construction methods, regulatory approach and technology.

OVERVIEW OF REGULATION OF HEALTH AND SAFETY IN THE NIGERIAN CONSTRUCTION INDUSTRY

The Factories Act F1 LFN 2004 is the H&S legislation designed to cover workplaces in Nigeria, stipulating the minimum H&S requirements for factories. Nonetheless, the Factories Act is inadequate as several studies demonstrate (for example Diugwu et al. 2012; Idoro 2008; Umeokafor et al. 2014).

Among the significant flaws of the Factories Act is the exclusion of construction sites and activities in the definition of its premises (Diugwu et al. 2012; Idoro 2008). As a result, it is argued that the construction industry is not covered by any local legislation thus unregulated by the H&S custodian in Nigeria (Idoro 2008).

However, the views below demonstrate that H&S laws or standards or instruments through one way or the other arguably cover the Nigerian construction industry. For instance, paragraph 1 article 16 of the ILO standard (Occupational Safety and Health Convention, 1981 NO 155) which Nigeria has ratified states that all employers should make sure that the workplaces, equipment, machinery and work processes that they control are safe, with no risk to health. This is as far as it is reasonably practicable (Occupational Safety and Health Convention, 1981 NO 155). Similarly, paragraph 3 article 16 of the aforesaid ILO convention also requires employers to take proactive steps to protect their employees. Therefore, this ILO standard is binding on Nigeria, as it has ratified it. However, due to the dualist legal system of Nigeria, ‘...*International instruments do not have the force of law in Nigeria until such instruments are specifically incorporated into Nigerian law* (through legislative process)’ (Okene 2009 p 30).

Nonetheless, authors such as Okene (2009) demonstrate that irrespective of the fact that the legal system of Nigeria is dualist, the courts in Nigeria can indirectly apply international instruments such as the Occupational Safety and Health Convention, 1981 NO 155). This can be on the grounds that it can aid the interpretation of the local laws or used for reference purposes by the courts (Okene 2009). It may also be on the grounds that it can make up for the anomalies of the local laws (ILO 2009) such as the Factories Act 2004, which excludes the construction industry in the definition of its premises. Okene (2009) offers a treatise on applying international legal instruments in Nigerian local law system.

On the grounds established above, it can be argued that the Nigerian construction industry is indirectly covered by Occupational Safety and Health Convention, 1981 NO 155. However, the extent to which the ILO standard is recognised and implemented may be low. After all, the local legislation, the Factories Act is yet to be adequately implemented and enforced.

Another way that H&S laws arguably cover the Nigerian construction industry is through adopted laws or corporate policies. For instance, some of the H&S policies and pieces of legislation that are adopted from the other countries by construction contractors and H&S corporate policies from the parent companies of multinational companies also cover the firms.

Nonetheless, both sides of the arguments above form the basis of this study. This is on the grounds that in Nigeria, H&S self-regulation can be argued to exist in the main variations thus:

Industry self-regulation: this is a process whereby members of the industry or trade association and/or professional organisations design or develop standards and administer them so as to control the activities of its members (Hutter 2006; King & Lenox 2000). This obtains in some parts of Nigeria like the oil producing states where members of the industry set the H&S requirements. It is also possible to describe this as client led self-regulation, as clients can specify the H&S standards for its contractors in the industry. This alternatively can be viewed as a form of self-regulation.

Pure self-regulation: this is where organisations will voluntarily develop or adopt standards and administer them (Gunningham 2011). If this is the case, then based on the comments of scholars such as Diugwu et al. (2012) and Idoro (2008), it can be argued that pure self-regulation may also obtain in Nigeria. Diugwu et al. (2012) and Idoro (2008) note that the Factories Act 2004 does not cover the construction industry. As a result, some construction organisations voluntarily adopt H&S standards and/or laws from developed countries and implement them (Idoro 2008).

However, there are construction companies that it is part of their company policy to self-regulate or that are bound by H&S legislation from outside Nigeria to self-regulate. These can be viewed as enforced self-regulation (Ayers & Braithwaite; Hutter 2001). Similarly, it is possible that some firms may comply with the requirements of the ILO convention afore-discussed because of their international reputation or standards, thus they are forced to self-regulate by the law. These are compliance with H&S laws, therefore, enforced H&S self-regulation. Enforced self-regulation can come at industry or state levels.

In view of the above, this study adopts a broad depiction for self-regulation covering the four categories above.

RESEARCH APPROACH

As enforced self-regulation is compliance with legislation, the literature on compliance with legislation was reviewed. Thus, the theories (such as calculated motivation theory) that explain compliance with legislation were therefore partly used in developing the framework. Also, as the subject broadly covers self-regulation at both industry and voluntary levels, the literature germane to determinants of self-regulation was reviewed and theories explaining the determinants were also included in developing the framework. Then evidence from literature that supports the theories was also used in developing the framework. It is important to note that some compliance theories are consistent with some self-regulation theories. Having done the above, it was observed that based on the researcher's opinion and further literature review, some elements of the framework that explain self-regulation in the Nigerian context such as power relationship case had emerged. Again, these were supported by evidence from literature.

Developing frameworks based on theories and evidence is consistent with studies not limited to Giuliano and Linder (2013), Nielsen (2003) and Lynes and Andrachuk (2008). The frameworks that these studies present with regard to self-regulation, and compliance with legislation alongside Peterson and Diss-Torrance (2012) and Winter and May (2001) have informed the development of the framework that this paper presents.

As developing the framework was based on a qualitative paradigm (i.e. literature review and researcher's opinions), its reliability and validity may be questioned. Consequently, it was sent to two H&S experts and one construction expert for validation. On receipt of their comments, the framework was revised. It is also thought that as Manu (2012) demonstrates, the peer-review process that this paper has gone through provides an acceptable level of academic validation for the framework. It is possible that non-professional views from the Nigerian construction industry will provide further insight to the discourse. Nevertheless, the experiences of the experts consulted have developed over the years thus can be supportive (cf. Manu 2012).

DEVELOPMENT OF THE ANALYTICAL FRAMEWORK

The analytical design

Fig. 1 shows that the determinants of self-regulation are interrelated (Giuliano & Linder 2013; Winter & May 2001) or not independent (Gonzalez-Benito & Gonzalez-Benito 2005). The arguments of the hypothetical relationship among factors of compliance by Nielsen (2003) can be repeated here. However, the evidence in practice that is presented in this paper may annul the hypothetical positions. In particular, it is possible that the market that construction contractors operate in will determine transaction cost (see industry case), providing more funds or reducing the funds available for H&S. This will in turn determine construction contractors' ability to self-regulate (see Fig. 1). Going by the argument of reducing the cost allocated to H&S, the evidence that construction contractors self-regulate because they understand the economic benefits of H&S self-regulation may annul the hypothetical relationship. Analogously, if the regulatory environment or legislation is complex (regulatory case), the ability of the construction contractors to self-regulate can be affected. Again,

this can be annulled by the premise that under the H&S regulatory environment of Nigeria, construction contractors can adopt clear standards from other countries. Other hypothetical relationships or interrelationships are in Fig. 1.

Contextual influence

Construction contractors in Nigeria are susceptible to the contextual environment of Nigeria just like other countries (cf. Kheni et al. 2010). Therefore, contextual factors such as religion, culture, and political influence due to the contextual environment (Fig. 1) influence them. These factors also influence the elements of the framework (Fig. 1). For instance, the Nigerian construction industry is not covered by any local H&S law (Diugwu et al. 2012, Idoro 2008), so the likelihood that construction contractors in Nigeria will not be prosecuted is high, and this is well known to them. This impacts on the economic case (see economic case below). It also impacts on regulatory case in that there will be no regulatory activities to drive and/or encourage self-regulation in terms of H&S (see regulatory case below). In terms of the ability to self-regulate, the H&S legislation of Nigeria is inadequate and the adopted ones may not be practicable (Aniekwu 2007). This may hinder the ability of the regulated to self-regulate.

Economic case

The argument that construction contractors in Nigeria will self-regulate in terms of H&S stems from deterrence theory (Ayres & Braithwaite 1992) or calculated motivation theory (Peterson & Diss-Torrance 2012; Winter & May 2001) (also see Giuliano and Linder 2013). Construction contractors weigh the benefit of self-regulation, the cost of self-regulation and the likelihood that they will be apprehended in Nigeria and decide if they will self-regulate. This means that they will self-regulate so as to save cost or to get more clients (Giuliano & Linder 2013). Giuliano and Linder (2013) also present this as business case in their framework for explaining self-regulation. Giuliano and Linder (2013) is indicative of pure-self-regulation, but can also be viewed as industry self-regulation, as it shows little elements of state involvement.

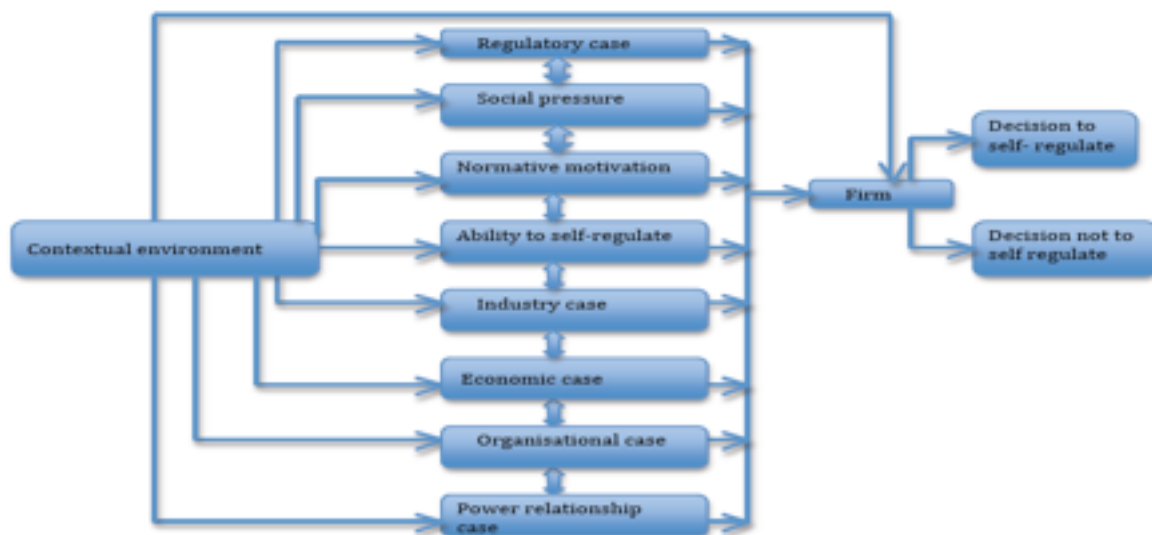


Fig. 1: A proposed framework for analysing the determinants H&S self-regulation.

Levinson (1987) also makes economic arguments for H&S self-regulation. Under this theory, factors such as self-regulation because of fear of punitive measures, self-regulation because of increased profit or productivity fall into this element of the framework. The argument by Nielsen and Mathiesen (2003) supports the discourse in that these economic factors determine compliance with legislation.

However, it is possible that the economic case may not hold in all cases. Cashore et al. (2005) found that economic or market factors do not determine the self-regulatory programs that some firms will adopt. This may be because of the environmental benefits of the programs thus suggesting moral values.

Normative motivation

This stems from Peterson and Diss-Torrance (2012) and Winter and May (2001). It is similar to altruism (Giuliano & Linder 2013) and the sense-making theory (Ancona 2012) of compliance with legislation. The regulated will consider how appropriate the legislation is and its moral standard and then decide whether to comply or not (Winter & May 2001). This also means that construction contractors will self-regulate if they believe that it is the right thing to do (cf. Giuliano & Linder 2013) or because they perceive the legislation as legitimate. This premise is consistent with Cashore et al. (2005), King and Lenox (2003), Nielsen (2003), and Nielsen and Mathiesen (2003).

With regard to the Nigerian construction contractors, if the argument that enforced self-regulation obtains holds, the regulated may perceive the adopted legislation as legitimate thus will self-regulate. This suggests that management perception is core in this regard. Levinson (1987) demonstrates the role of management commitment in H&S self-regulation. Also, if the argument that pure self-regulation obtains in Nigeria holds, the regulated knowing the benefits of self-regulation such as low accident rate may consider it moral to self-regulate. This highlights the role of the moral position of the organisations in determining H&S self-regulation. This may in turn become a norm in the organisation. Christmann and Taylor (2001) discuss the role of norm in self-regulation in detail.

Social pressure

The impact of accidents on the society can prompt the following: pressure from public interest groups, legal actions, and negative publicity. These actions from external bodies will determine if organisations will self-regulate (Giuliano & Linder 2013). Just as this can make organisations comply with legislation, it can also encourage them to self-regulate (Cashore et al. 2005). According to Peterson and Diss-Torrance (2012) and Winter and May (2001), organisations will comply with legislation to gain recognition with society or other stakeholders they interact with. The same can be said of pure self-regulation or self-regulation with little industry involvement (Giuliano & Linder 2013). Winter and May (2001) and Nielsen (2003) depict this as social motivation. King and Lenox (2000) discuss this from an industry self-regulatory perspective noting that the image of organisations with poor safety records can be the target. Social pressure can also come from competing firms (suggesting industry case), and the media. Levinson (1987) also demonstrates the impact of unionisation on self-regulation in terms of H&S.

Ability to self-regulate

In the context of this study, this can occur when the construction contractors wish to self-regulate in terms of H&S but are unable to. This can be due to lack of finance, inadequate legislation, complex legislation, and lack of proper knowledge of the legislation (Winter & May 2001). In particular, the uncontextualised H&S legislation in Nigeria is impracticable (Aniekwu 2007); this may discourage construction contractors or limit the extent they self-regulate. Correspondingly, Nielsen (2003) and Winter and May (2001) demonstrate this element in the context of compliance with legislation. Typically, Nielsen (2003) suggests that management and transaction cost can determine the ability to self-regulate in terms of H&S. Laeeque et al. (2006) also support this premise in that the ability to comply is a major motivator for large firms because they mostly have the resources. The ability of construction contractors in Nigeria to self-regulate in terms of H&S can also be determined by level of innovation and level of education as Christmann and Taylor (2001) suggest.

Regulatory case

The nature of legislation, the level of involvement of construction contractors in the regulatory process (which is determined by the category of regulation), the level of external involvement can determine if an organisation will self-regulate. Therefore, the higher the level of external involvement,

the more likely it is that the regulated will not self-regulate. When organisations feel that they are involved in the regulatory process, they may feel that their interests are covered. In industry self-regulation, the firms can also develop the regulatory systems knowing how to get other firms to self-regulate.

Giuliano and Linder (2013) present the threat of regulation case covering the efforts of the regulator, the legislative proposals and political discourse. As per regulatory efforts, scholars argue that regulatory activities can make organisations self-regulate (Giuliano & Linder 2013) or comply with legislation (Nielsen 2003), but Wu (2009) finds little evidence that regulatory pressure can contribute to over-compliance under certain conditions. It is therefore suggested that the impact of regulatory efforts on H&S self-regulation on Nigerian construction contractors may be limited.

The main arguments on the impact of international regulatory environments on firms in developing countries are made by Christmann and Taylor (2001). They note that firms in developing countries may self-regulate, as they may fear that selling their products in the international market may be challenging. This is because the international market may have standards that will require them to self-regulate. Therefore, in the context of this study, the national market and even the international market should be attractive enough to indigenous construction contractors so as to get them to self-regulate. This also indicates the positive impact of globalisation on self-regulation (Christmann & Taylor 2001).

Industry case

This is another significant explanation for H&S self-regulation in Nigeria. It is noted in studies that construction contractors in the oil and gas sector of Nigeria have good H&S records (Windapo & Jegede 2013) (also see Okojie 2010). The standards that these oil and gas companies (who mostly have foreign corporate policies) set regulate the industry. They have stringent requirements for all contractors.

On a different point, this element of the framework also covers the activities in the market or industry that the construction contractors operate in. Typically, there can also be competitive pressure in the market, and pressure from larger firms, making construction contractors to self-regulate. Also, high level of risks in the operations of industries, as can be seen in the oil and gas sector of Nigeria, may make them to self-regulate. It is also possible that some contractors will self-regulate because others are self-regulating. Gonzalez-Benito and Gonzalez-Benito (2005) pen the influence of industrial sector on environmental proactivity, which can be pure self-regulation.

Additionally, it is also possible that the influence of construction supply chain can contribute to H&S self-regulation as clients or designers can influence self-regulatory decisions. Clients can make H&S mandatory. Also, the perceptions in the industry accounts for the decision to self-regulate. For instance, in the Nigerian construction industry, H&S is viewed as exclusively for large firms or for contractors in the oil and gas sector.

Organisational case

This relates to the internal factors in the organisation in terms of decision-making. This can be where construction contractors self-regulate because of their corporate culture. Corporate culture can be determined by the structure of ownership. For multinationals, this is a combination of Nigerians and foreigners thus a mixture of cultures. For indigenous firms, this is fully of Nigerian culture. In this cases, the organisation will consider its corporate culture, the contextual environment of Nigeria and decide to self-regulate or the extent of self-regulation. This may explain why evidence from the literature suggests that multinationals self-regulate in terms of H&S (Okojie 2010; Windapo & Jegede 2013).

Power relationship case

This relates to the ability of a group in the society to influence or control others. Firstly, those that are regulated in Nigeria will consider the level of their power relationship in the society and decide

whether to self-regulate or not. Specifically, powerful people in the higher echelon of the society, politicians or their friends own most of these construction firms (Okojie 2010). Thus, they are able to largely resist any opposition in the country. They are also able to influence regulatory authorities as Okojie (2010) reports. Worse still, evidence suggests that their ability to secure contracts may not necessarily be affected by their H&S record. Conversely, although rare, it is possible that they will self-regulate to protect their status in the society.

Secondly, the power of influence can also come in the form of financial power. If the level of the power relationship of the regulated is low, they may resort to financial power. It is possible that some construction contractors engage in corrupt practices such as bribery, to influence or resist oppositions. Umeokafor et al. (2014) discuss bribery and corruption in the Nigerian construction industry.

CONCLUDING REMARKS AND THOUGHTS

A proposed framework for analysing the determinants of H&S self-regulation in the Nigerian construction industry is presented in this paper. Some elements of the proposed framework include: regulatory case, power relationship, organisational case, normative case, and the ability to self-regulate. Also, it is demonstrated that contextual influence may impact on the entire framework. The insight that this study provides has implications not limited to understanding the decision-making processes of firms to self-regulate in terms of H&S. It also provides insight into analysing and understanding the H&S regulatory environment of Nigeria and policymaking. While this proposed framework may be designed for the Nigerian construction industry, it can also be helpful to other developing countries because they have similar characteristics. Also, the framework is not restricted to the construction industry or H&S, as self-regulation extends to other industries and other socio-legal areas. While the research approach of this study may be argued to present subjective views, with potential bias, the framework validation process offers some level of confidence. However, further studies can validate the framework through focus group discussions or surveys.

REFERENCES

- Ajayi, O and Thwala, W D (2014) Assessment of the impact of musculoskeletal disorders on Nigerian construction workers. In: Kum, R K, Nani G, Atepor, L. Opong, R A, Awere E and Bamfo-Agyei E (Eds) 'Procs 3rd Applied Research Conference in Africa. (ARCA) Conference' 7- 9 August 2014, Accra, Ghana.
- Ancona, D (2012) Sensemaking: Framing and acting in the unknown. In Snook, S, Noriah, N and Khurana, R (eds) 'The Handbook for teaching leadership: Knowing, Doing and Being'. London: Sage Publication.
- Aniekwu, N (2007) Accidents and safety violations in the Nigerian construction industry, 'Journal of Science and Technology', 27 (1) 81 – 89
- Ayres, I and Braithwaite, J (1992) 'Responsive regulation: Transcending the deregulation debate'. New York: Oxford University Press.
- Cashore, B, van Kooten, G C, Vertinsky, I, Auld, G and Affolderbach, J (2005) Private or self-regulation? A comparative study of forest certification choices in Canada, the United States and Germany. 'Forest Policy and Economics', 7, 53-69.
- Christmann, P and Taylor, G (2001) Globalization and the environment: determinants of firm self-regulation in China. 'Journal Of International Business Studies', 32(3), 439 - 458.
- Diugwu, I A, Baba, D L, and Bima, A M, (2013) Research and legal underpinnings of the quantity surveyor as a health and safety manager', in Ibrahim, A. D., Adogbo, K J, and Ibrahim, Y M (eds), '1st Annual Research Conference (AnReCon)', 3 - 5 September, Abuja, Nigeria. The Nigerian Institute of Quantity Surveyors, 243 - 252.

- Diugwu, I A, Baba, D L, and Egila, A E (2012) Effective regulation and level of awareness: An expose of the Nigeria's construction industry. 'Open Journal of Safety Science and Technology', 2,140-146.
- Dodo, M (2014) The application of health and safety plan in Nigeria construction firms, 'Jordan Journal of Civil Engineering, 8(1) 81 – 87.
- Giuliano, G and Linder, A (2013) Motivations for self-regulation: The clean air action plan, 'Energy Policy' 59, 513 – 522.
- Gonzalez-Benito, J and Gonzalez-Benito, O (2005) A review of factors of environmental proactivity. 'Business Strategy and the Environment', 15, 87- 102.
- Gunningham, N (2011) Investigation of industry self-regulation in workplace health and safety in New Zealand. Gunningham & Associates Pty Ltd. Retrieved on 12-09-14 from <http://www.dol.govt.nz/whss/resources/investigation-industry-self-regulation-whss-nz.pdf>
- Havinga, T (2006) Private regulation of food and safety by supermarkets. 'Law and Policy', 28 (4), 516- 533.
- Hutter, B (2001) [Is enforced self-regulation a form of risk taking?: The case of railway health and safety](#) 'International Journal of the Sociology of Law', 29 (4), 379 - 400.
- Hutter, B (2006) 'The role of non-state actors in regulation'. Centre for analysis of risks and regulation, London school of Economics and political science, London, UK.
- Idoro, G I (2007) A comparative evaluation of health and safety performance of indigenous and multinational construction firms in Nigeria. 'Construction Research Journal', 1(1), 65-75.
- Idoro, G I (2008) Health and safety management efforts as correlates of performance in the Nigerian construction industry. 'Journal of Civil Engineering and Management', 14(4) 277 - 285.
- Idoro G I (2011) Comparing occupational health and safety (OHS) management efforts and performance of Nigerian construction contractors. 'Journal of Construction in Developing Countries', 16 (2), 151 – 173.
- International Labour Organisation (ILO) C155 - Occupational Safety and Health Convention, 1981 (No. 155). Retrieved from http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C155
- International Labour Standard (ILO) (2009) Rules of the Game: An introduction to internal labour standards. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---normes/documents/publication/wcms_108393.pdf
- Kheni, N A, Gibb, A G F and Dainty, A R J (2010) The health and safety management within small- and medium-sized enterprise (SMEs) in developing countries: Study of contextual influence. 'Journal of Construction Engineering and Management', 136(10), 1104 – 1115.
- King, A A, and Lenox, M J, (2000). Industry self-regulation without sanctions: The chemical industry's responsible care program. 'Academic of Management Journal', 43(4), 698 -716.
- Koehn, E, Kothari, R K, and Pan, C (1995) Safety in developing countries: professional and bureaucratic problems, 'Journal of Construction Engineering and Management', 121 (3), 261 – 265.
- Laeque, H, Boon, H, Kachan, N, Cohen, J. C, and D'Cruz, J (2006) The Canadian natural health products (NHP) regulations: Industry compliance motivations. 'Advances Access Publication', 4 (2), 257- 262.
- Levinson (1987) Self-regulation and health and safety. 'Employee Relations', 9(4), 3-8
- Lingard, H C, Cooke, T, and Blismas, N (2012) Designing for construction worker's occupational health and safety: A case study of social-material complexity. 'Construction Management and Economics', 30(5), 367- 382.

- Lynes, J K and Andrachuk, M (2008) Motivations for corporate social and environmental responsibility: A case study of Scandinavian airlines 'Journal of International Management' 14 (4), 377-390.
- Marks, E D and Teizer, J (2013) Method for testing proximity detection and alert technology for safe construction equipment operation, 'Construction Management and Economics', 31(6), 636 – 646.
- Manu, P (2012) 'An investigation into the accident causal influence of construction project features', A Doctoral thesis University of Wolverhampton. Retrieved from <http://wlv.openrepository.com/wlv/bitstream/2436/265178/1/Ackon%20Manu%20PhD%20thesis.pdf>
- Nielsen, J R (2003) An analytical framework for studying: compliance and legitimacy in fisheries management. 'Marine Policy' 27(5), 425- 435.
- Nielsen, J R and Mathiesen, C (2003) Important factors influencing rule compliance in fisheries lessons from Denmark. 'Marine Policy', 27, 409-416.
- Okene, O V C (2009) Brining rights home: The status of internal legal instruments in Nigerian domestic law. Journal of Law, Practice and Procedure, 1(4,) 12 -31
- Okojie, O (2010) System for reporting occupational diseases in Nigeria. African Newsletter on Occupational Health and Safety, 20(3), 51-53.
- Peterson, K and Diss-Torrance, A (2012) Motivation for compliance with environmental regulations related to forest health. 'Journal of Environmental Management', 112, 104-119.
- Umeokafor, N, Umeadi, B, and Isaac, D (2014) Determinants of compliance with health and safety regulations in Nigeria's construction industry. 'Journal of Construction Project Management and Innovation', 4(S1) 882- 899.
- Windapo, A O and Jegede, O P (2013) A study of health, safety and environment (HSE) practices of Nigerian construction companies. 'The Professional Builder', 4 (1), 92- 103.
- Wu, J (2009) Environmental Compliance: The good, the bad, and the super green. 'Journal of Environmental Management' 90, 3363 - 3381.